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(54) SOLENOID DEVICE

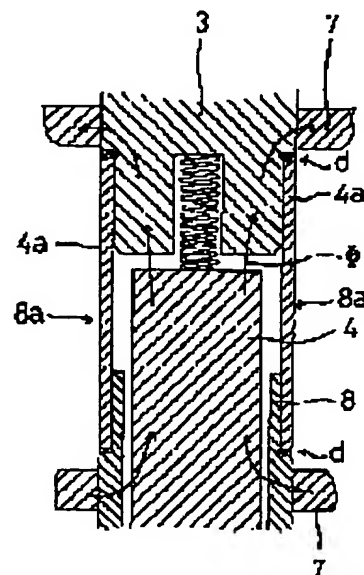
(57) Abstract

PROBLEM TO BE SOLVED: To enable economical manufacture with a simple structure for efficiently driving a solenoid valve, by forming a guide member for lifting and guiding a moving core using a non-magnetic material and a magnetic material.

SOLUTION: In a solenoid device, a support cylinder 8 of a guide member 8a located between a yoke 7 and a moving core 4 is made of a magnetic material. The support cylinder 8 is welded to a guide cylinder 4a having a shape with a step and made of a non-magnetic material, in such a manner as to make a gap between the support cylinder 8 and the moving core 4 as narrow as possible, thereby constituting the guide member 8a. Thus, in the solenoid device, the guide member 8a of the moving core 4 is easily welded to a welding point d using electron-beam welding. In addition, the electron-beam welding causes high-speed thermoelectrons to collide with a welding target portion in a vacuum, so as

to melt up to a target layer portion, and does not gas contamination to the molten metal.

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(34) SOLENOID DEVICE

(37) Abstract:

PROBLEM TO BE SOLVED: To enable convenient manufacturing with a simple structure by effectively directing a magnetic flux, by forming a guide member for guiding and guiding a magnetic core using a non-magnetic material and a magnetic material.

SOLUTION: In a solenoid device, a support cylinder 8 of a guide member 4 is formed between a yoke 7 and a moving core 4 is made of a magnetic material. The support cylinder 8 is welded to a guide cylinder 4a having a shape with a step and made of a non-magnetic material, in such a manner as to make a gap between the support cylinder 8 and the moving core 4 as narrow as possible, thereby controlling the guide member 4a. Thus, in the solenoid device, the guide member 4a of the moving core 4 is easily welded to a welding point of using electron-beam welding. In addition, the electron-beam welding causes high pressure/heat to act on the weld line to make a large portion in a vacuum, so as to

to weld up to a target layer portion, and does not cause gas contamination to the molten metal.

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